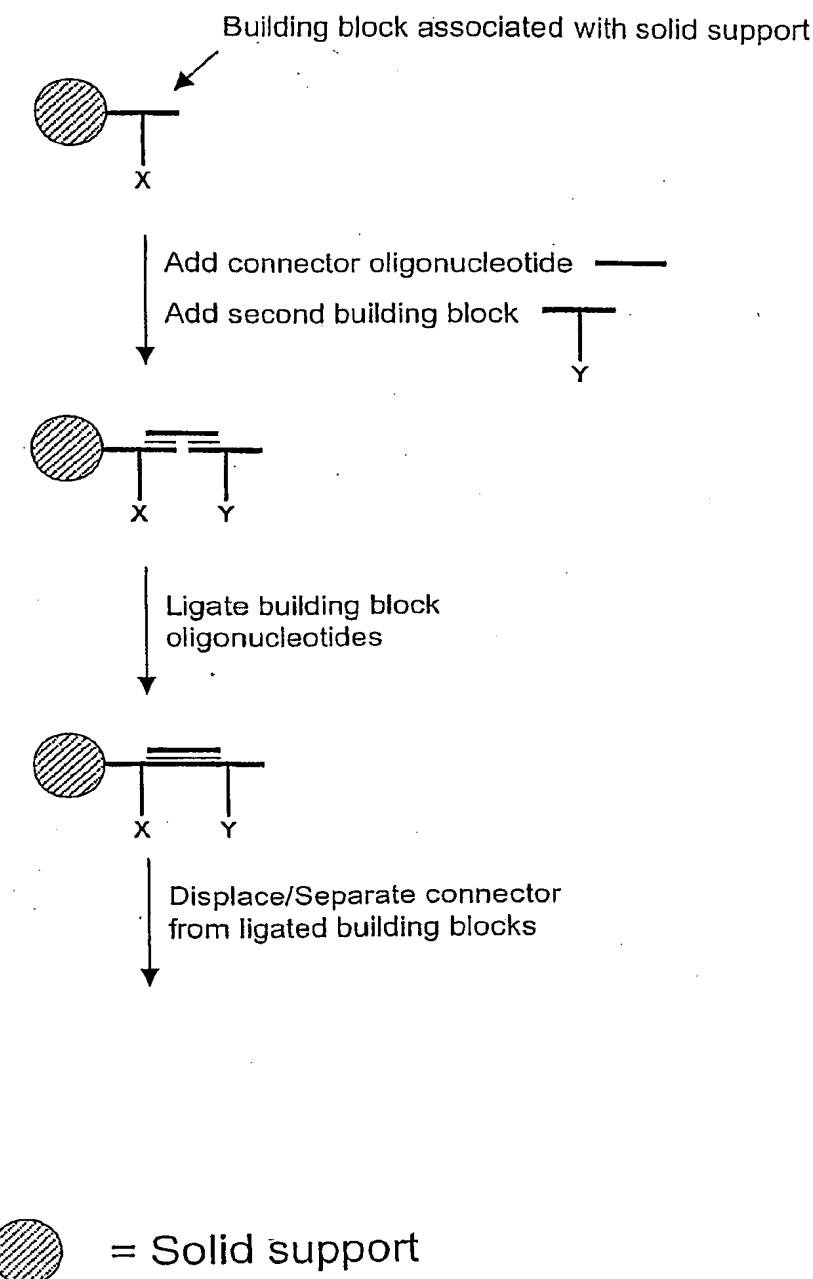
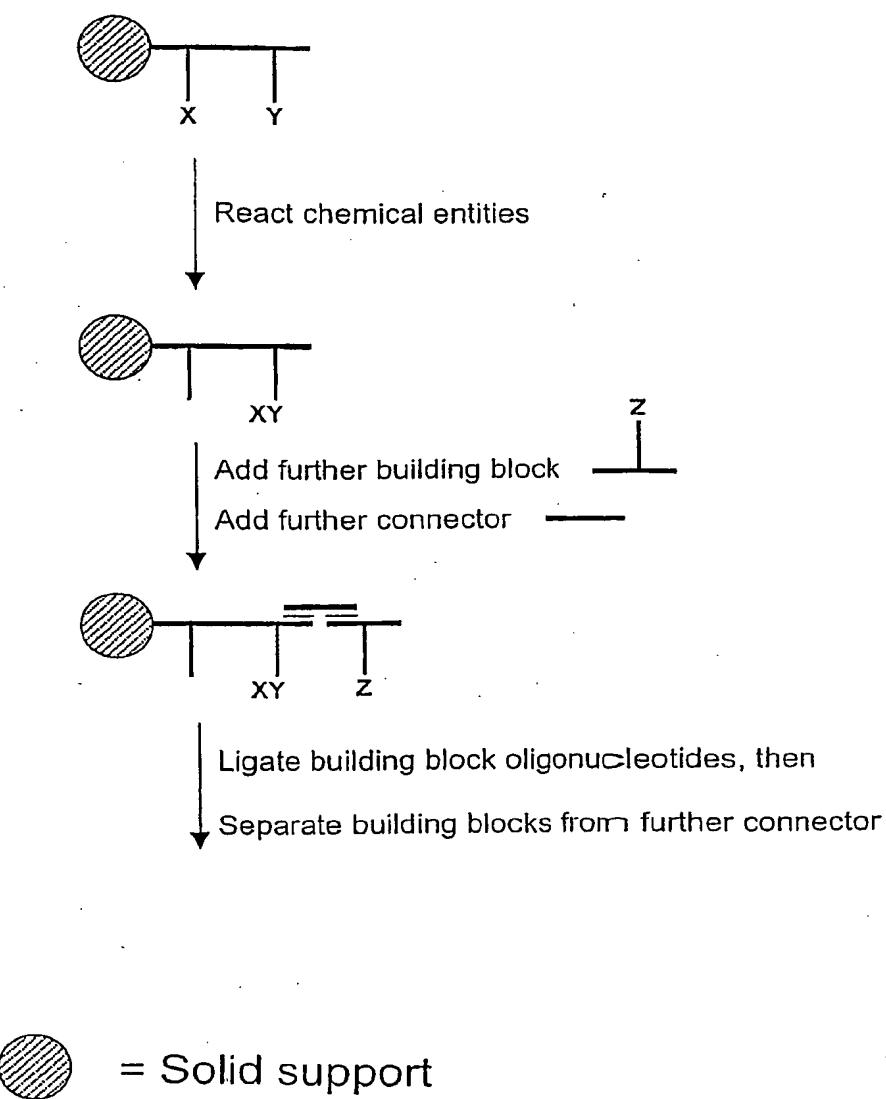


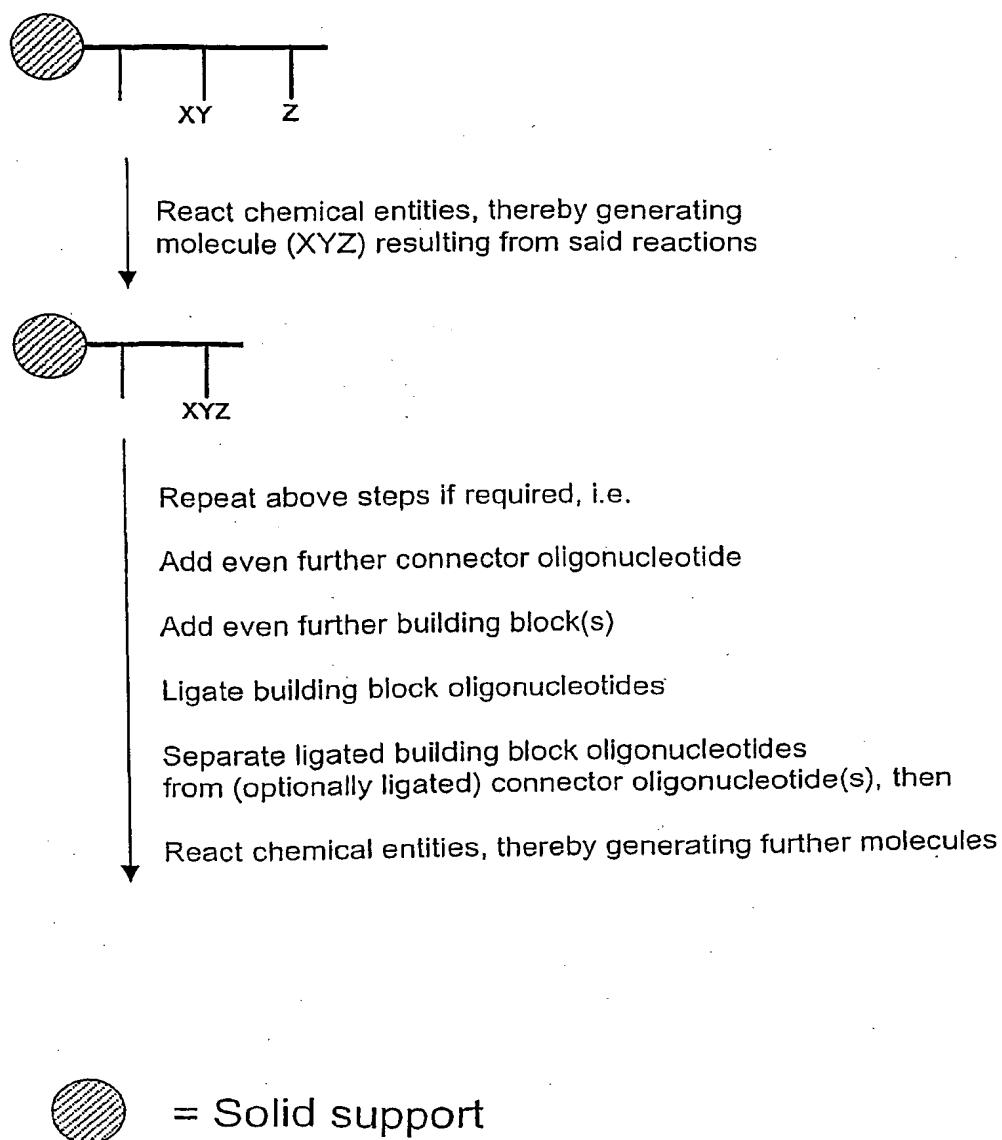
1/32

Figure 1A

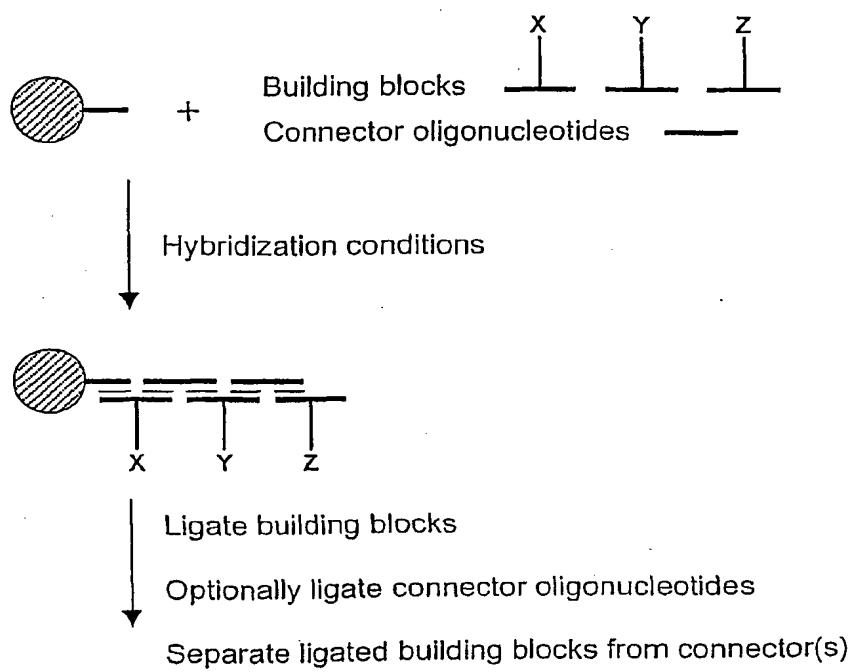
2/32

Figure 1B

3/32

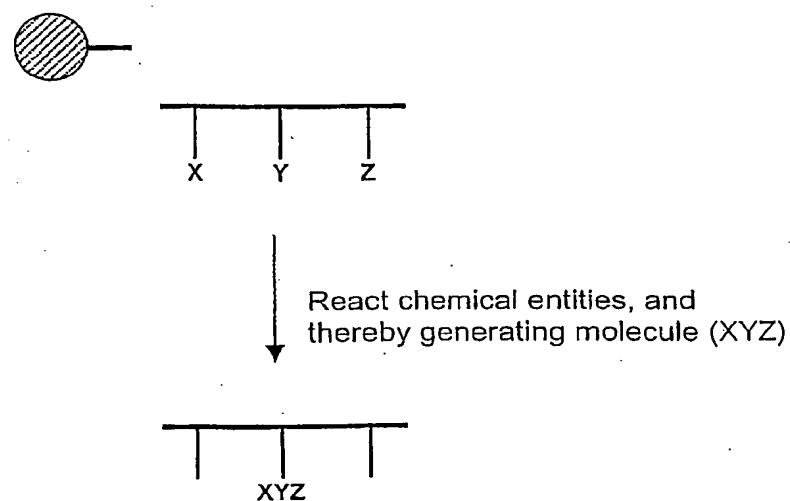
Figure 1C

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Figure 2A

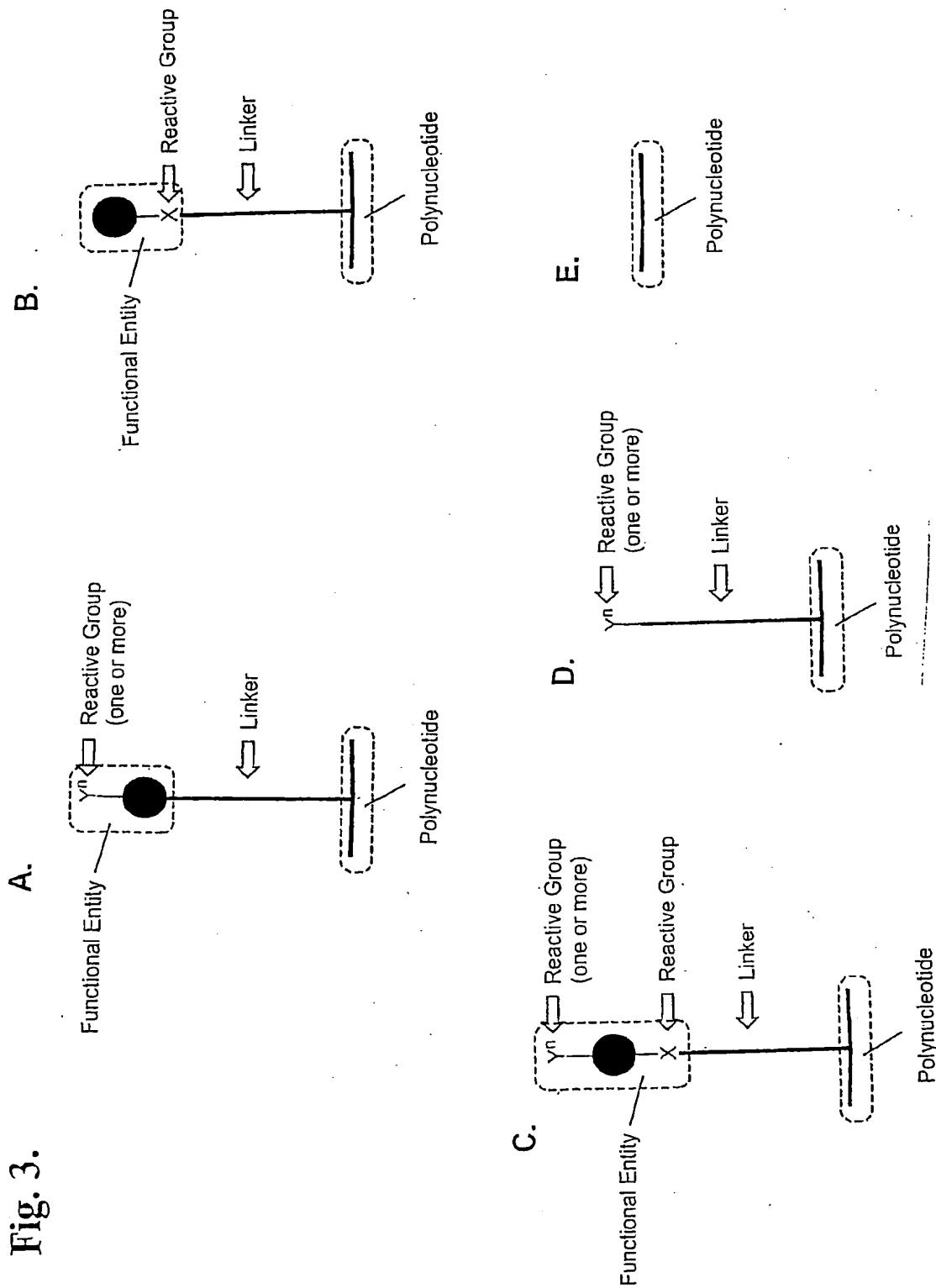
= Solid support

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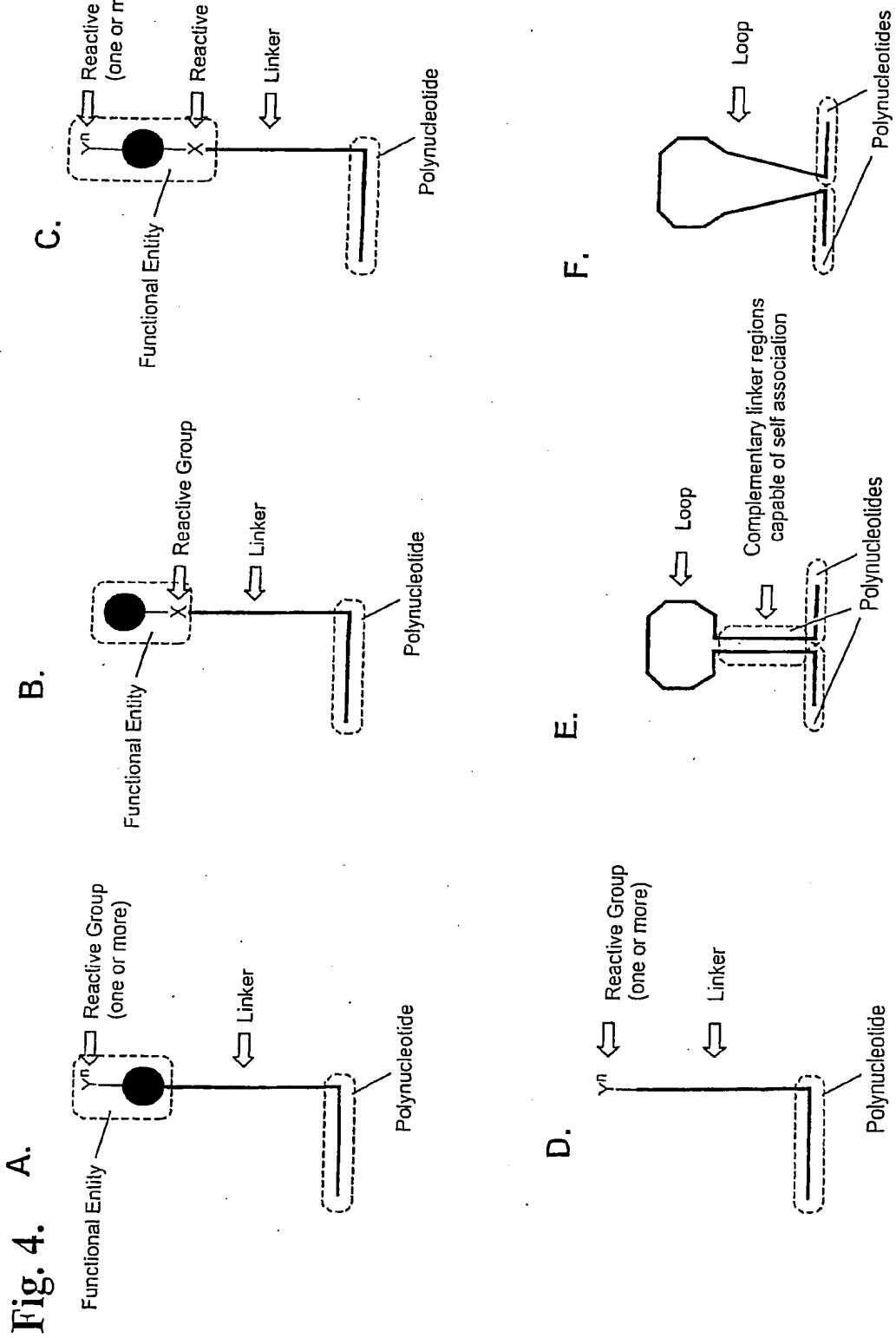
Figure 2B

= Solid support

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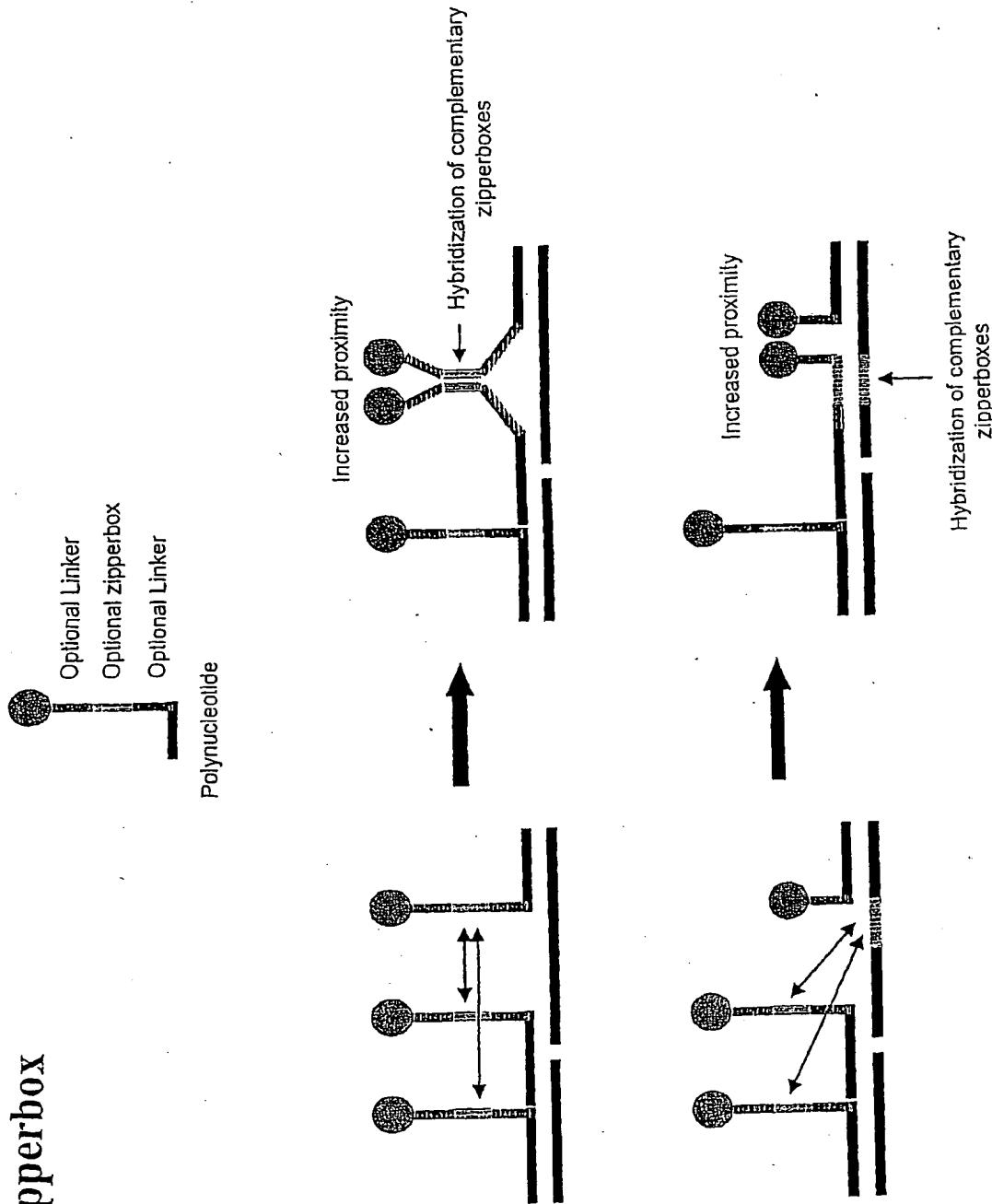
8/32

Fig. 5. Zipperbox

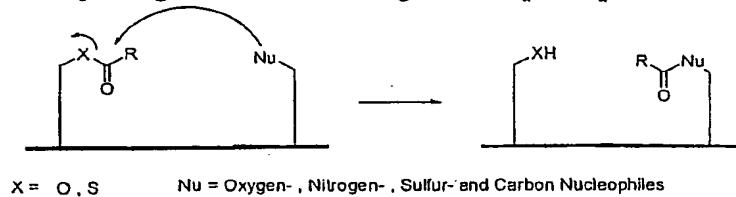
Optional reactive group or a Functional Entity comprising a reactive group

```

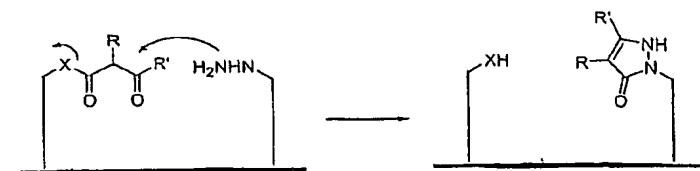
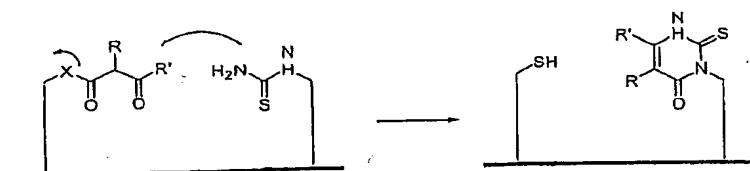
graph TD
    A((Optional reactive group or a  
Functional Entity comprising a reactive group)) --- B[Optional Linker]
    B --- C[Optional Zipperbox]
    C --- D[Optional Linker]
    D --- E[Polymer]
  
```



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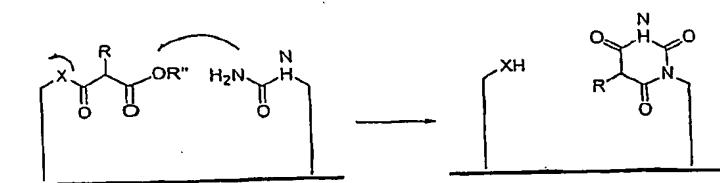
Fig. 6. Reaction types allowing simultaneous reaction and linker cleavage.**Nucleophilic substitution using activation of electrophiles****A. Acylating monomer building blocks - principle****B. Acylation****Amide formation by reaction of amines with activated esters****C. Acylation****Pyrazolone formation by reaction of hydrazines with β -Ketoesters**

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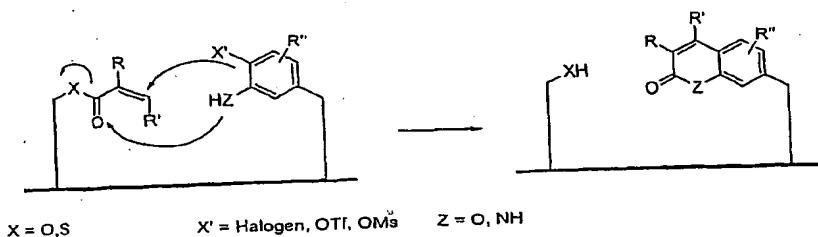
**D. Acylation**Isoxazolone formation by reaction of hydroxylamines with β -Ketoesters**E. Acylation**Pyrimidine formation by reaction of thioureas with β -Ketoesters**F. Acylation****SUBSTITUTE SHEET (RULE 26)**

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Pyrimidine formation by reaction of ureas with Malonates



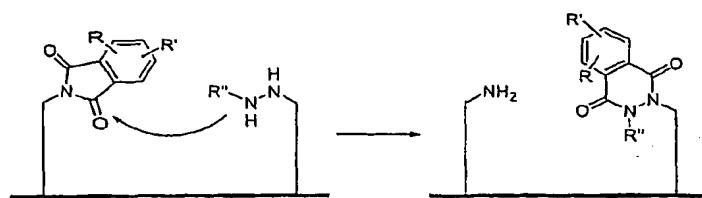
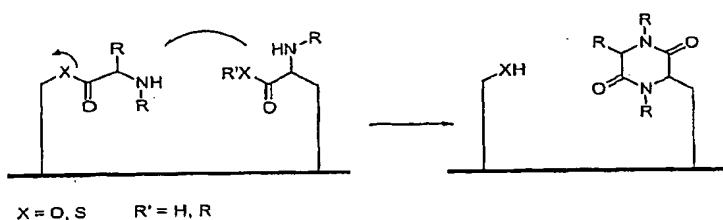
G. Acylation
Coumarine or quinolinon formation by a Heck reaction followed by a nucleophilic substitution



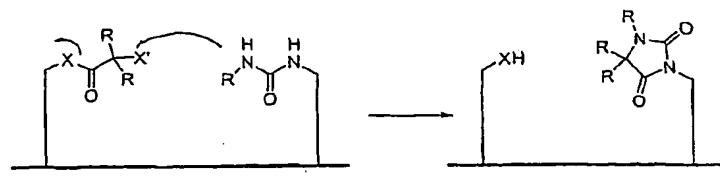
H. Acylation
Phthalhydrazide formation by reaction of Hydrazines and Phthalimides

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**I. Acylation****Diketopiperazine formation by reaction of Amino Acid Esters****J. Acylation****Hydantoin formation by reaction of Urea and α -substituted Esters**

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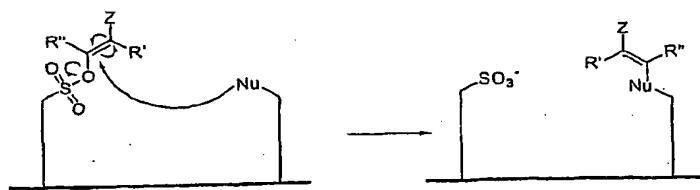
X = O, S X' = Hal, OTos, OMs, etc.

**K. Alkylating monomer building blocks - principle
Alkylated compounds by reaction of Sulfonates with Nucleophiles**



Nu = Oxygen-, Nitrogen-, Sulfur- and Carbon Nucleophiles

L. Vinylating monomer building blocks - principle



Z = CN, COOR, COR, NO₂, SO₂R, S(=O)R, SO₂NR₂, F
Nu = Oxygen-, Nitrogen-, Sulfur- and Carbon Nucleophiles

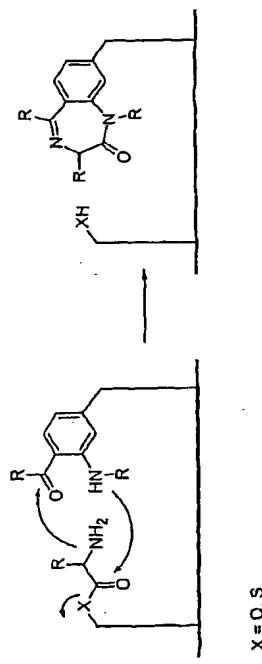
14/32

M. Heteroatom electrophiles
Disulfide formation by reaction of Pyridyl disulfide with mercaptanes

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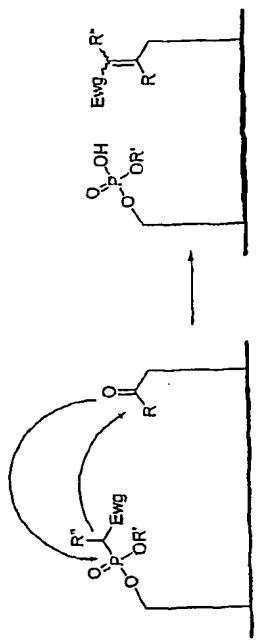
15/32

N. Acylation
Benzodiazepinone formation by reaction of Amino Acid Esters
and Amino Ketones



Addition to carbon-hetero multiple bonds

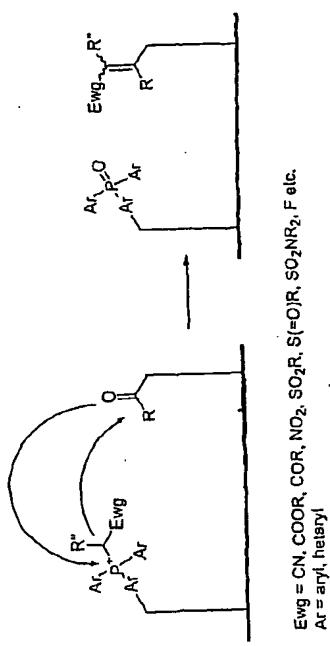
O. Wittig/Horner-Wittig-Emons reagents
Substituted alkene formation by reaction of Phosphonates with Aldehydes or
Ketones



Ewg = CN, COOR, COR, NO₂, SO₂R, Si=O|R, SO₂NR₂, F etc.

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P. Wittig/Horner-Wittig-Eminons reagents
 Substituted alkene formation by reaction of Phosphonates with Aldehydes or
 Ketones



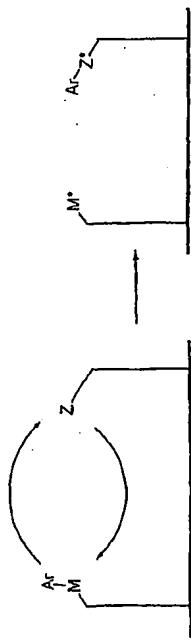
Ewg = CN, COOR, COR, NO₂, SO₂R, Si=O|R, SO₂NR₂, F etc.
 Ar = aryl, heteraryl

Transition metal catalysed reactions

Q. Transition metal cat. Arylations

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Z = halobaryl, halohearyl, ArOMs, ArOTs, ArOTos or NHR or OH or SH etc.

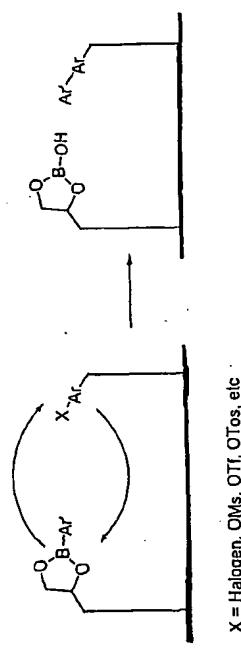
Z* = Aryl, hetaryl, NR or O or S etc.

M = e.g. BR, BR₂, SnR₂ etc.

R = H, alkyl, aryl, hetaryl, OR, NR₂

M* = e.g. B(OH)R, B(OH)R₂, Sn(OH)R₂ etc.

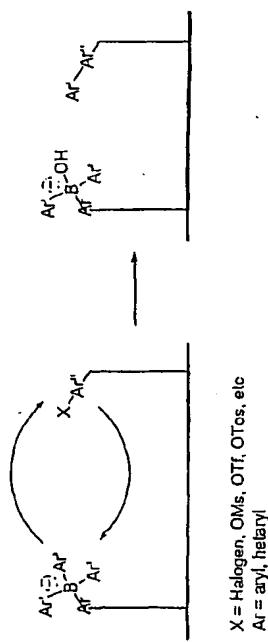
R. Arylation
Biaryl formation by the reaction of Borates with Aryls or Heteroaryls



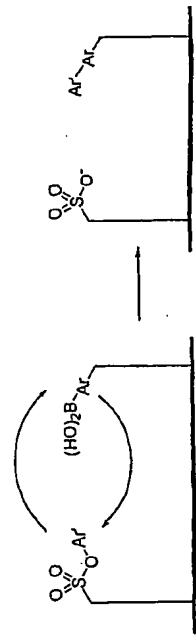
X = Halogen, OMs, OTf, OTos, etc.

S. Arylation
Biaryl formation by the reaction of Boronates with Aryls or Heteroaryls

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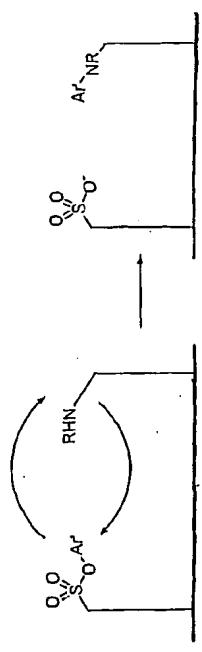


T. Arylation
Biaryl formation by the reaction of Boronates with Aryls or Heteroaryls

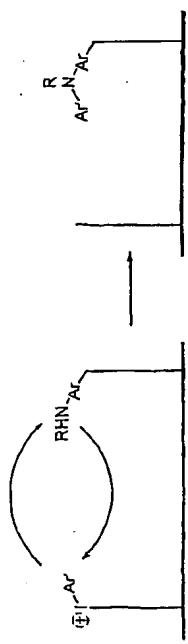


U. Arylation
Arylamine formation by the reaction of amines with activated Aryls or Heteroaryls

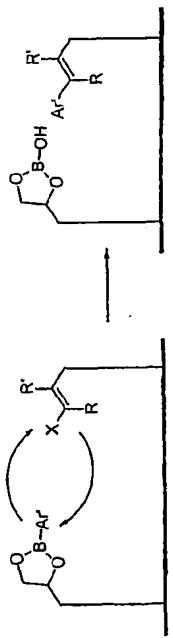
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V. Arylation
Arylamine formation by the reaction of amines with hypervalent iodonium salts



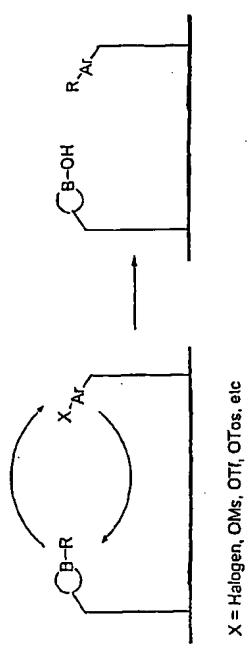
X. Arylation
Vinylarene formation by the reaction of alkenes with Aryls or Heteroaryls



$\text{X} = \text{Halogen, OMs, OTl, OTos, etc}$

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Y. Alkylation
Alkylation of arenes/hetarens by the reaction with Alkyl boronates

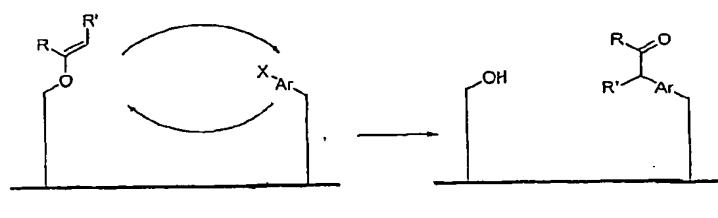


X = Halogen, OMs, OTf, OTos, etc

Z. Alkylation
Alkylation of arenes/hetarenes by reaction with enolethers

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$X = \text{Halogen, OMs, OTf, OTos, etc}$

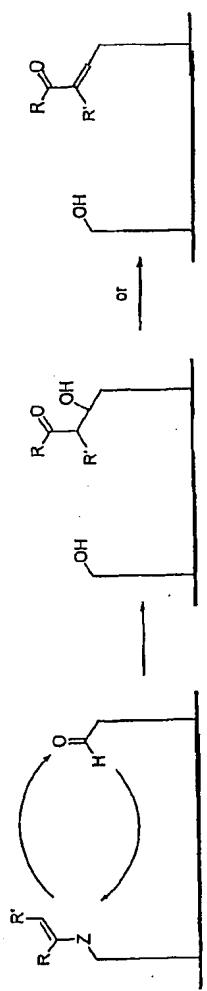
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Nucleophilic substitution using activation of nucleophiles

A.A. Condensations

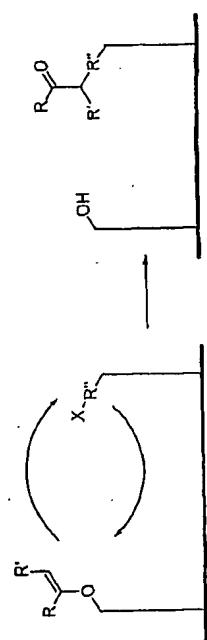
Alkylation of aldehydes with enoethers or enamines



Z = NR, O; X = Halogen, OMs, OTf, OTos, etc

B.B. Alkylation

Alkylation of aliphatic halides or tosylates with enoethers or enamines

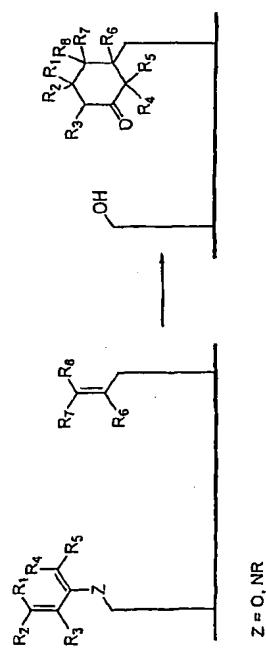


X = Halogen, OMs, OTf, OTos, etc

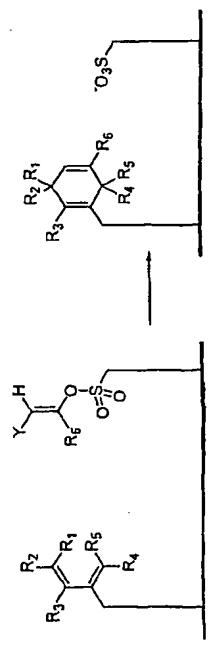
23/32

Cycloadditions

A.C. [2+4] Cycloadditions



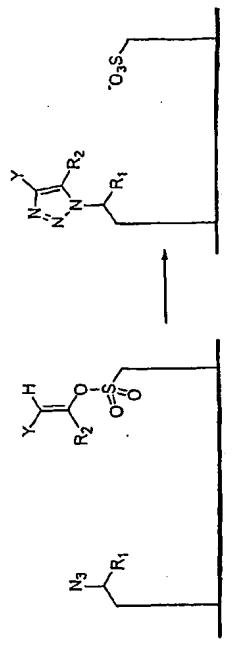
AD. [2+4] Cycloadditions



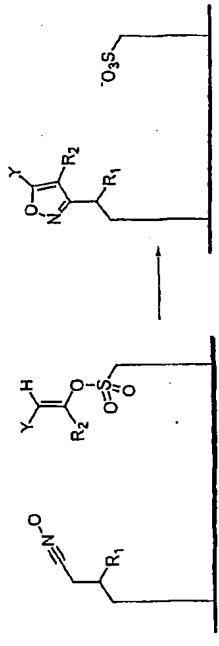
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AE. [3+2] Cycloadditions



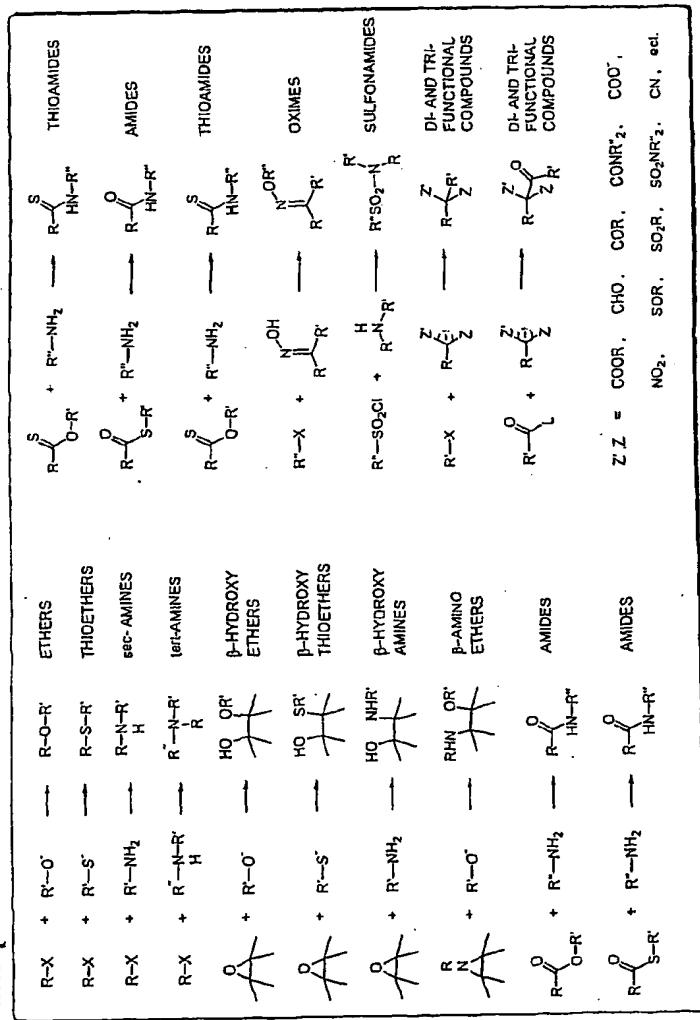
AF. [3+2] Cycloadditions



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Figure 7. Pairs of reactive groups X,Y and the resulting bond XY.

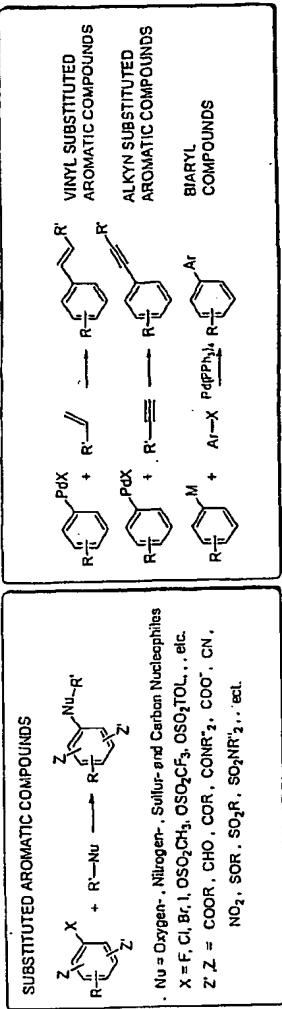
Nucleophilic substitution reactions



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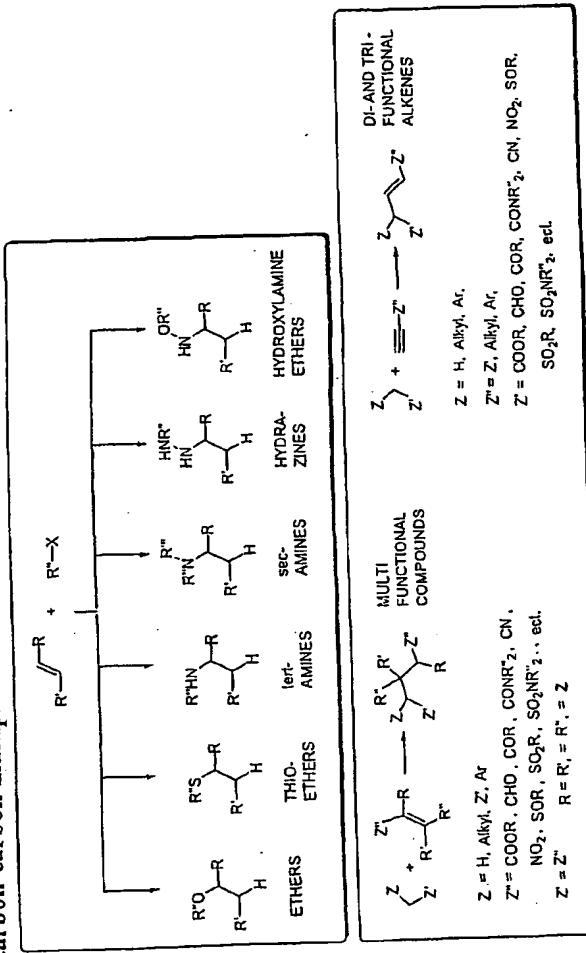
26/32

Aromatic nucleophilic substitution Transition metal catalysed reactions

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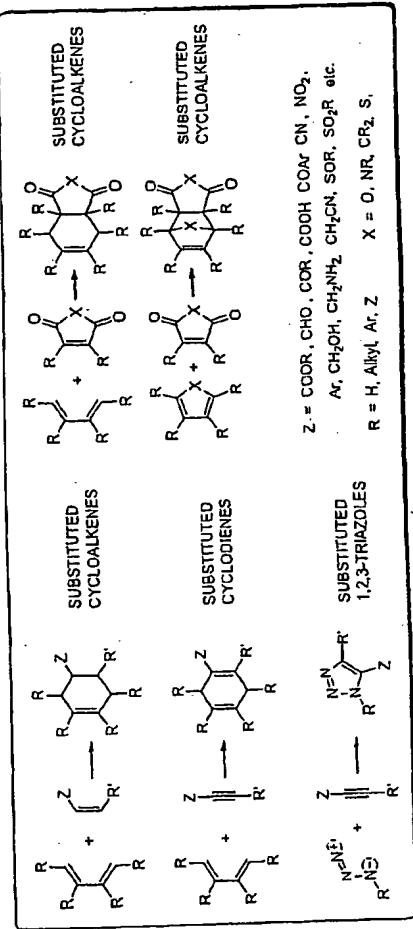
27/32

Addition to carbon-carbon multiple bonds



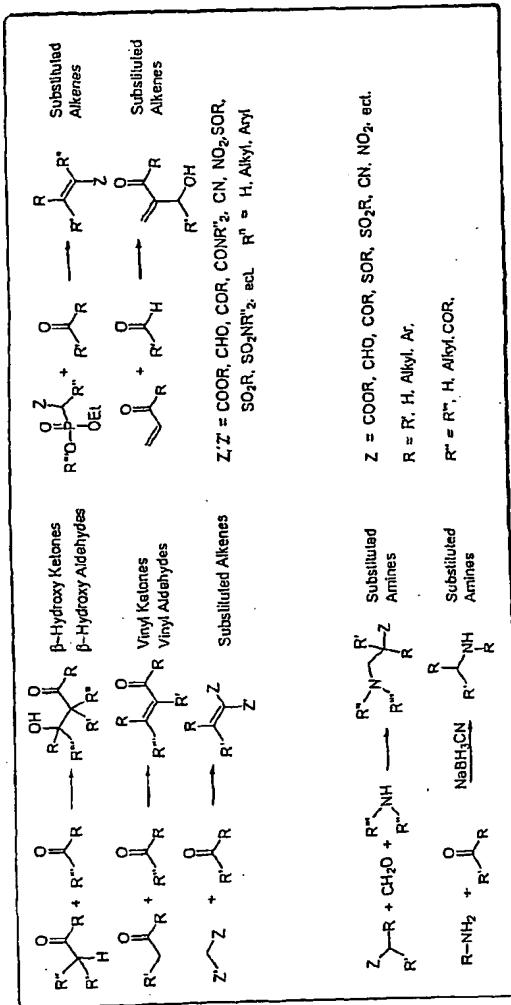
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Cycloaddition to multiple bounds

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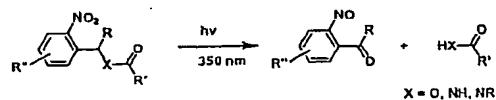
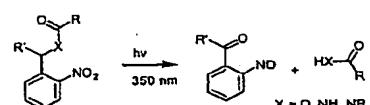
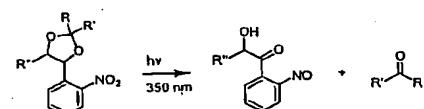
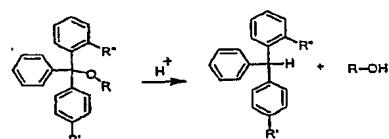
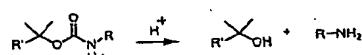
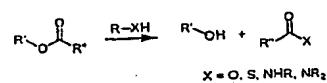
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Addition to carbon-hetero multiple bonds

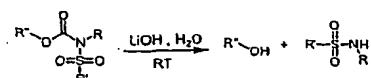
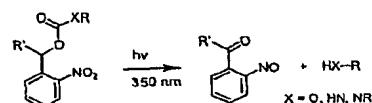
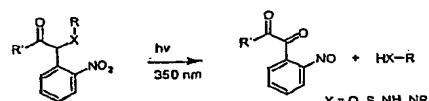
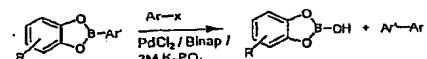
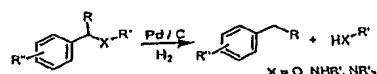
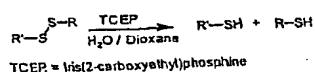


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Figure 8. Cleavable Linkers**A. Linker for the formation of Ketones, Aldehydes, Anides and Acids****B. Linker for the formation of Ketones, Anides and Acids****C. Linker for the formation of Aldehydes and Ketones****D. Linker for the formation of Alcohols and Acids****E. Linker for the formation of Amines and Alcohols****F. Linker for the formation of Esters, Thioesters , Amides and Alcohols****SUBSTITUTE SHEET (RULE 26)**

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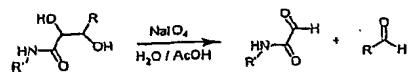
G. Linker for the formation of Sulfonamides and Alcohols**H. Linker for the formation of Ketones, Amines and Alcohols****I. Linker for the formation of Ketones, Amines, Alcohols and Mercaptanes****J. Linker for the formation of Biaryl and Bihetaryl****K. Linker for the formation of Benzylic, Anilines, Anilins
Alcohols and Phenoles****L. Linker for the formation of Mercaptanes**

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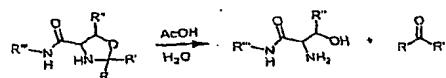
M. Linker for the formation of Glycosides



N. Linker for the formation of Aldehydes and Glyoxylamides



O. Linker for the formation of Aldehydes, Ketones and Aminoalcohols



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